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EXAMINER	
LE, TOAN M	

ART UNIT	PAPER NUMBER
2863	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/501,370	COLEOU, THIERRY	
	Examiner	Art Unit	
	TOAN M. LE	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 April 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-9,11,12,14 and 15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-9,11,12,14 and 15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 July 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicant's request for reconsideration of the 35 USC 101 rejection of the last Office action is persuasive and, therefore, the 101 rejection is withdrawn.

Claims 1, 3-9, 11-12, and 14-15 are drawn to filtering seismic data/trace to produce and record new seismic data/trace lead to conclusion that claims recite statutory processes and not methods of calculating (In re Johnson et al., 200 USPQ 199(C.C.P.A. 1978).

Claim Objections

Claim 3 is objected to because of the following informalities:

Claims 3, line 1, "A method according to claim 2" should read -A method according to claim 1-.

Appropriate correction is required.

Claims 8 & 9 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

For instance, in claim 8, the step of determining the orthogonal residues for the various data series by subtracting the estimated common component from each of the data series has been recited in claim 3. And in claim 9, the step of implementing kriging analysis to resolve said orthogonal residues has been recited in claim 4.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-9, 11-12, and 14-15 are rejected under 35 U.S.C. 102(b) as being anticipated by "Integrating Seismic Data in Reservoir Modeling: The Collocated Cokriging Alternative", Xu et al. (referred hereafter Xu et al.).

Referring to claim 1, Xu et al. disclose a method of filtering at least two series of seismic data representative of the same zone, the method being characterized by determining a cross variogram of these data series (*page 834, Notations section; page 834, Regression Algorithms section; pages 835-836, The Collocated Cokriging Model section; page 838, Collocated Cokriging section describing determining a cross variogram of these data series such as well data and 3D seismic data*) and solving a co-kriging equation which results from this determination for automatically deducing an estimate of the component that is common to the data series (*Figure 4 on page 841; ; page 834, Regression Algorithms section; pages 835-836, The Collocated Cokriging Model section; page 838, Collocated Cokriging section*), and from the estimate, resolving each of the data series into sum of their common component and orthogonal residues (*Figure 4 on page 841; pages 835-836, The collocated Cokriging Model section; page 838, Collocated Cokriging section describing common component and orthogonal residues such as* $y^*_1(u)$ *and* $\sigma^2_{SK}(u)$*in Equation 13*), the resolution of the data series being used for determining the topography of the subsoil (*Figure 4 on page 841*).

Referring to claim 3, Xu et al. disclose a method according to claim 1, characterized by determining the orthogonal residues for the various data series by subtracting the estimated

common component from each of the data series (*page 835, The External Drift Model section*; *page 838, Collocated Cokriging section*).

As to claim 4, Xu et al. disclose a method according to claim 3, characterized by implementing kriging analysis to resolve said orthogonal residues (*page 835, The External Drift Model section*; *page 838, Collocated Cokriging section*).

Referring to claim 5, Xu et al. disclose a method of processing seismic data, comprising:

comparing two series of seismic data corresponding, for the same zone, to grids of at least one common attribute obtained at two distinct values of at least one given parameter, said comparing including filtering at least two series of data representative of the same zone by determining a cross variogram of these data series (*page 834, Notations section; page 834, Regression Algorithms section; pages 835-836, The Collocated Cokriging Model section; page 838, Collocated Cokriging section describing determining a cross variogram of these data series such as well data and 3D seismic data*) and solving a co-kriging equation which results from this determination for automatically deducing an estimate of the component that is common to the data series (*Figure 4 on page 841; ; page 834, Regression Algorithms section; pages 835-836, The Collocated Cokriging Model section; page 838, Collocated Cokriging section*), and from the estimate, resolving each of the data series into the sum of their common component and orthogonal residues (*Figure 4 on page 841; pages 835-836, The collocated Cokriging Model section; page 838, Collocated Cokriging section describing common component and orthogonal residues such as* $y^*_1(u)$ *and* $\sigma^2_{SK}(u)$*in Equation 13*).

As to claim 6, Xu et al. disclose a method of filtering at least one series of seismic data representative of at least one zone, the method being characterized by identifying a model of a

component of three-dimensional variability of its variogram (*page 834, Regression Algorithm section; page 835, The external Drift Model section*), subtracting said model from the experimental variogram, and solving the kriging equation corresponding to the different variograms in order to deduce an estimate of the corresponding variability component on the data series (*page 834, Regression Algorithm section; page 835, The external Drift Model section; Figure 3 on page 841*).

Referring to claim 7, Xu et al. disclose a method of processing seismic data, comprising:

comparing two series of seismic data corresponding, for the same zone, to grids of at least one common attribute obtained at two different instants, said comparing including filtering at least two series of seismic data representative of the same zone by determining a cross variogram of these data series (*page 834, Notations section; page 834, Regression Algorithms section; pages 835-836, The Collocated Cokriging Model section; page 838, Collocated Cokriging section describing determining a cross variogram of these data series such as well data and 3D seismic data*) and solving the co-kriging equation which results from this determination for automatically deducing an estimate of the component that is common to the data series (*Figure 4 on page 841; ; page 834, Regression Algorithms section; pages 835-836, The Collocated Cokriging Model section; page 838, Collocated Cokriging section*), and from the estimate, resolving each of the data series into the sum of their common component and orthogonal residues (*Figure 4 on page 841; pages 835-836, The collocated Cokriging Model section; page 838, Collocated Cokriging section describing common component and orthogonal residues such as* $y^*_1(u)$ *and* $\sigma^2_{SK}(u)$*in Equation 13*).

As to claim 8, Xu et al. disclose a method according to claim 1, characterized by determining the orthogonal residues for the various data series by subtracting the estimated common component from each of the data series (*page 835, The External Drift Model section*; *page 838, Collocated Cokriging section*).

Referring to claim 9, Xu et al. disclose a method according to claim 8, characterized by implementing kriging analysis to resolve said orthogonal residues (*page 835, The External Drift Model section*; *page 838, Collocated Cokriging section*).

Referring to claim 11, Xu et al. disclose a method according to claim 5, characterized by determining the orthogonal residues for the various data series by subtracting the estimated common component from each of the data series (*page 835, The External Drift Model section*; *page 838, Collocated Cokriging section*).

As to claim 12, Xu et al. disclose a method according to claim 11, characterized by implementing kriging analysis to resolve said orthogonal residues (*page 835, The External Drift Model section*; *page 838, Collocated Cokriging section*).

As to claim 14, Xu et al. disclose a method according to claim 7, characterized by determining the orthogonal residues for the various data series by subtracting the estimated common component from each of the data series (*page 835, The External Drift Model section*; *page 838, Collocated Cokriging section*).

Referring to claim 15, Xu et al. disclose a method according to claim 14, characterized by implementing kriging analysis to resolve said orthogonal residues (*page 835, The External Drift Model section*; *page 838, Collocated Cokriging section*).

Response to Arguments

Applicant's arguments with respect to claims 1, 3-9, 11-12, and 14-15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

"Methodology for Variogram Interpretation and Modeling for Improved Reservoir Characterization", Gringarten et al., SPE 56654, 1999, Pagers 1-13.

"Application of Seismic Attribute Filtering with Factorial Kriging to Estimate Porous Volume: A Case Study on a Brazilian East Coast Offshore Turbidite Reservoir", Mundim et al., 2001, SPE 69481, Pages 1-9.

"Pseudo-Cross Variograms, Positive-Definiteness, and Cokriging", Myers, D., Mathematical Geology, Vol. 23, No. 6, 1991, Pages 805-816.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TOAN M. LE whose telephone number is (571)272-2276. The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Toan Le

/TL/
July 30, 2009

/Michael P. Nghiem/
Primary Examiner, GAU 2863